

# GETTING STARTED ON CHLORINE-FREE PAPER PURCHASING

## FREQUENTLY ASKED QUESTIONS

### 1. What does paper have to do with dioxins?

Paper production involves three primary steps: pulping and delignifying the wood, bleaching the pulp, and producing paper from the pulp. The primary source of dioxin formation during paper production is during the bleaching process. Dioxins are formed from the combination of chlorine with organic material. If chlorine-containing chemicals are used for bleaching, the chlorine combines with the remaining lignin in the wood to form dioxins. Recycled paper may also contain dioxins in the waste paper being recycled.

### 2. Why buy chlorine-free paper?

Eliminating chlorine and chlorine derivatives from the paper making process eliminates toxic pollutants such as dioxins and furans which can be created during the bleaching process. These pollutants, which bioaccumulate in the environment, are a proven cause of numerous health problems including cancer, reproductive problems, genetic damage, and immune system suppression.

### 3. What types of chlorine-free paper are available?

There are four types of processes that are used as alternatives to chlorine-based bleaching processes. The terms ECF (Elemental Chlorine Free), PCF (Process Chlorine Free), and TCF (Totally Chlorine Free) have become fairly commonly used terms to describe the bleaching of papers. Technically, the terms Processed Chlorine Free (PCF) and Totally Chlorine Free (TCF) are trademarked terms of the Chlorine Free Products Association (CFPA) [See more information on certification in Question 8 below]. While some products are advertised as PCF or TCF, they are not necessarily certified by the CFPA.

This document uses the terms ECF, TCF, and PCF to describe the process used to bleach paper, and use of these terms does not imply certification by CFPA. To avoid confusion in paper bids, ABAG recommends using the following language for specifying the equivalent of “PCF”, developed by Green Seal: “Neither chlorine nor any of its derivatives (such as hypochlorite and chlorine dioxide) shall be used in the bleaching agent if bleaching is employed in the manufacture of the product. This is qualified by agreeing that the recycled fibers might have previously been bleached with chlorine in some form.”

The ECF, TCF, and PCF paper types are described below.

## **ECF**

Elemental Chlorine Free (ECF) bleaching processes replace “elemental chlorine” (chlorine gas) with chlorine dioxide as the bleaching agent. Chlorine dioxide tends to oxidize lignin rather than combine with it to form dioxins. Although ECF has been shown to significantly reduce the amount of dioxins discharged from a paper mill (often to below detection limits), chlorine by-products are not eliminated (Reeve, 1997). However, because ECF processes still use a chlorine-based product, the opportunities to reuse wastewater within the plant are limited. The chlorine in the water makes it too corrosive to be recycled through the pipes in the plant and prevents the mill from becoming totally effluent free. Traditional paper mills can relatively easily be converted to ECF bleaching with only a 5 to 10% increase in bleaching costs, and the strength and brightness of ECF papers are almost equal in quality to traditionally bleached papers (Pryke, 1997).

## **TCF**

Totally Chlorine Free (TCF) processes eliminate the use of chlorine bleach and use oxygen-based chemicals (i.e. oxygen, hydrogen peroxide, and ozone) to remove the remaining lignin and whiten the paper. TCF only applies to virgin fiber papers, since it is not necessarily known how the recycled content fibers were originally bleached. Because no chlorine-based products are used, the wastewater from the bleaching plant can be recycled within the plant and the plant could be designed to have little or no discharges of wastewater. On the other hand, between 0% and 11% more wood is required to produce paper using TCF processes because of the lower lignin content requirements (EDF, 1995). Additionally, TCF pulp may have less brightness and strength than traditional and ECF bleached papers which could result in a shorter lifecycle for recycling the paper (Pryke, 1997). Finally, traditional mills cannot be as easily or cheaply converted to TCF processes as to ECF processes.

## **PCF**

Since recycled products may or may not have come from virgin products that were bleached, the environmental alternative for chlorine bleached recycled products is called Process-Chlorine Free (PCF). This indicates that no chlorine was used in the production of the recycled product. In this way, it is equivalent to TCF for virgin wood production. However, it does not indicate that the fibers have never been bleached using chlorine during their lifetime, and residual dioxins from the original production and use can be present in the paper. Any virgin pulp is TCF.

## **Unbleached**

Another alternative is to just not bleach the products. Personal hygiene papers such as toilet paper, facial tissue and sanitary products do not need to be bright white for use. If the use of the product does not require a bright white color, not bleaching the pulp at all could be a way to reduce the amount of dioxins formed. Because bleaching removes the remaining lignin in the pulp, unbleached products typically have more lignin than products produced using any bleaching method. As a result, unbleached products are stronger and substantially darker in color than bleached products.

### **4. What is the ABAG Dioxins Task Force doing?**

The ABAG Dioxins Task Force has selected the purchase of chlorine-free paper as one of its pilot projects. Because the municipalities involved in the task force are committed to buying recycled content paper in addition to avoiding the use of chlorine or chlorine compounds in current bleaching processes, the Task Force has chosen to pursue the purchase of Process Chlorine Free paper. Additionally, the Task Force has chosen to further focus its efforts on purchasing copy paper and toilet paper. Copy paper has the benefit of being a large purchase item as well as providing an opportunity for labeling the paper with its recycled content and chlorine-free properties. Toilet paper was chosen because it is also a large purchase item and provides the opportunity to make a direct impact to what is discharged into the local sewer systems and wastewater treatment plants. PCF copy paper and unbleached or PCF toilet paper are the focus of the rest of this fact sheet.

### **5. How much do PCF copy papers cost?**

Research in late 2003 found that papers with 60% or 100% post-consumer fibers and PCF cost \$29.00-68.25 per case. The lowest prices are for larger volume purchases and dock delivery. The exact price will depend on a variety of market factors including the particular paper, the distributor, the quantity purchased, and the type of delivery (dock or inside). Comparable prices for typical 30% recycled paper range from approximately \$23-43 per case.

Notes:

500 sheets = ream; 10 reams = case/carton; 5,000 sheets = case/carton

## 6. What PCF copy papers are available?

There are currently four identified manufacturers producing PCF copy paper. These papers are summarized in the table below.

Manufacturer	Brand Name	% total recycled content/ % post-consumer fiber	Color	Brightness/ basis weight	Local Distributor	Current Price (as of date noted)	Contact Info
Badger	<i>Envirographic 100</i>	100/100	White, colors	85/20,24	New Leaf (also sells Encore 100 at 100/100 and 84/20 under a private label).	\$29.00-33.50/case (New Leaf, October 2003)	Justin Tiret/New Leaf: 503-244-5323 and Russell Levan/RPPC (a co-op offering New Leaf papers: 800-694-8355)
Rolland	<i>New Life Dual Purpose 100</i>	80/60 and 20% TCF	White	84/20	Greg Barber/ Graphic Paper (also sells Rolland Evolution 100 at 100/100 and 84/20,24 in assorted colors)	\$35.00/case (dock v. inside delivery) for 40 cases. Reduced prices for higher volumes (December 2003)	Greg Barber: 800-840-4555 x113 office. Visit website to get cost estimate: <a href="http://www.gregbarberco.com">www.gregbarberco.com</a>
Georgia Pacific (Fort James)	<i>Eureka 100</i>	100/100	White	84/20	Xpedx (also sells Aspen 100 at 100/30 and 84/20 in white)	\$68.25/case (Xpedx, October 2003)	Xpedx Hayward office, Carol: 800-222-5475 x4028
Boise Cascade	<i>Aspen 100</i>	100/100	White	84/20	Spicers (also sells Grace Harbor GHP 100)	\$42.00/case (Spicers, through Alameda Co GSA contract); \$30.76/case (Boise, through GSA contract)	Bill Swisser/Spicers: 866-774-2377 x345 Anthony Armstrong-Brown /Boise: 800-310-8008 x5162

						(December 2003)	
--	--	--	--	--	--	-----------------	--

In addition to the suppliers included in the table, several other suppliers may be available:

- Treecycle (Montana): Envirographic 100 and Eureka 100  
([www.treecycle.com](http://www.treecycle.com) or call Rick 406-586-5287)
- Real Earth (Santa Monica): Eureka 100  
([www.treeco.com](http://www.treeco.com) or call Donna at 310-457-6331)
- Green Home (San Francisco): Envirographic 100  
([www.greenhome.com](http://www.greenhome.com) or call Sara at 415-282-6400)
- Green Earth (Los Gatos): Eureka 100  
([www.greenearthofficesupply.com](http://www.greenearthofficesupply.com) or call Patty 408-395-3975)
- Dolphin Blue (Texas): New Life DP  
([www.dolphinblue.com](http://www.dolphinblue.com) or call 800-932-7715)

## **7. What is the quality of these papers and how well do they perform?**

The quality of these papers is similar to that of conventional copier papers. All have brightness and opacity ratings that exceed most office standards. Most people report good performance on all office machines. The perception that recycled content papers cause problems in copiers still exists, however, and copier technicians have tended to blame malfunctioning equipment on such papers. In reality, any paper can cause a problem, and copiers need to be adjusted for any new paper. According to John Katz of EPA's EPP Program, copy machines are calibrated for the type of paper that an organization usually gets and changes in the brand of paper purchased often lead to the problem of jamming. Once the machines are recalibrated, the new paper works without a problem.

Because of this issue, testing of new paper on specific equipment and office conditions is recommended, and buyers can put a testing clause in their bids. Some buyers have also included specific language in their copier and copier service contracts. The Massachusetts copier contract contains this clause: "Warranties and service contracts MUST not preclude the use of recycled paper and/or the use of remanufactured supplies under this contract. Service contractors MAY NOT fault the use of such recycled paper and/or supplies for equipment failures, as long as these products are on contract with the Commonwealth." (Paper Working Group, 2001.)

## **8. How are environmental claims certified?**

Environmental claims can be self-certified or certified by a third-party. Self-certification means that the paper manufacturer self-certifies environmental claims by providing documentation upon request.

The Chlorine Free Products Association (CFPA) certification mark, Processed Chlorine Free (PCF), is reserved for recycled content paper. This includes all recycled fibers used

as a feedstock that meet EPA guidelines for recycled or post-consumer content. PCF papers have not been rebleached with chlorine containing compounds. Minimum of 30% post-consumer content is required. The PCF certification mark establishes:

- No chlorine or chlorine compounds were used in the papermaking process;
- The virgin fiber comes from certifiable sustainable managed forest and does not come from old growth timber;
- The product contains at least 30% post-consumer content;
- The mill accepts a mathematical model which standardizes post-consumer content;
- The mill has no current or pending permit violations;
- The certification process provides the mill with recommendations on product quality and productivity.

Of the four manufacturers of copy paper in the table above, only Rolland New Life DP paper is certified by the CFPA.

There are other, more general ecological certifications, including EcoLogo, Green Seal, Nordic Swan, and Scientific Certification Systems. None of these certifications currently appear to have a specific chlorine-free bleaching requirement as part of their certification.

- EcoLogo is the Canadian symbol for environmental products meeting a reduced "environmental burden" according to a formula developed by TerraChoice Environmental Services. Rolland and Boise Cascade papers have the EcoLogo seal of approval.
- Green Seal certifies papers and products that meet its minimum environmental criteria.
- Nordic Swan is a European environmental product label with standards for low emissions in pulp and paper production.
- SCS is certification by Scientific Certification Systems, which verifies specific environmental claims, depending on what manufacturers wish to guarantee. Check with the mill or SCS to find out what the specific SCS certification covers.

For more information, check EPA's webpage on environmental labeling:

<http://www.epa.gov/opptintr/environmental-labeling/report.html>

## **9. Is there currently a purchasing cooperative available in the Bay Area?**

Yes. The Recycled Products Purchasing Cooperative (RPPC), sponsored in part by US EPA Region 9 and coordinated by Solana County Recyclers, a non-profit environmental organization located in San Diego. RPPC currently offers 100% post-consumer recycled, PCF *Encore* paper, distributed through New Leaf (8 ½ x 11, white, 85 bright, 20#). It is multi-use office copy paper for all high speed xerographic uses, laser and inkjet printers

and fax machines. Prices in 2002 ranged from \$29.00-33.50/case depending on number of cases purchased. RPPC does not currently offer any toilet paper.

Other cooperative purchasing opportunities may include existing or future contracts through Alameda County's General Services Agency, the State of California's Department of General Services, or the U.S. Communities Government Purchasing Alliance (US Communities). [US Communities is jointly sponsored by the National Association of Counties (NACo), the National Institute of Governmental Purchasing (NIGP), the National League of Cities (NLC), and the United States Conference of Mayors (USCM).]

More detailed information on participating in a purchasing pool is available in a separate Task Force handout, *Cooperative Purchasing Opportunities for Buying PCF Copy Paper*.

#### **10. How can I create an Environmentally Preferable Purchasing Policy (EPP) or specification for PCF paper?**

A packet containing information on sample EPPs, specifications, and resources is available on the Dioxins Pollution Prevention Project website:

[http://dioxin.abag.ca.gov/project\\_materials.htm](http://dioxin.abag.ca.gov/project_materials.htm)

#### **11. Who can I contact for more information on purchasing PCF copy paper?**

The following entities are currently purchasing PCF copy paper:

- City of Palo Alto: Georgia-Pacific Eureka 100. Currently out for bid.  
(Contact Julie Weiss: 650-494-7629)
- State of Vermont: Rolland New Life DP 100 and Badger Envirographic  
(Contact Ken Feld: 802-828-4658)
- EPA Region 9: Badger/New Leaf Encore 100 through the Recycled Paper Purchasing Cooperative (RPPC)  
(Contact Timonie Hood: 415-972-3282)

Additionally, the Center for a New American Dream launched its Paper Working Group with an initial emphasis on office copy paper in 2002. The purpose of the working group is to determine what information is available and what information is needed for state and local governments and other institutional purchasers to buy more environmentally preferable paper. For more information or to participate in this group, visit their website at [www.newdream.org/procure](http://www.newdream.org/procure) or contact Scot Case at [scot@newdream.org](mailto:scot@newdream.org) or 610 373-7703.

#### **12. What is the availability and pricing of unbleached or PCF toilet paper?**



In recent years, the tissue manufacturers have reduced the production and environmentally-friendly qualities (post-consumer content and non-chlorine bleaching) of their products. Previously environmentally-friendly products have been discontinued or else the product has been gutted environmentally in terms of the quantity of post-consumer content and the bleaching method. The EPA guideline for minimum post-consumer fiber (pcf) content in tissue products is 20%. Many “recycled” products now only meet the minimum guideline.

For example, apparently Fort James, the maker of the Envision toilet tissue, due to their own market research, determined that: “Research clearly indicates that customers are not aware of existing post-consumer fiber levels. In addition, 95% post-consumer fiber is not a key purchase criteria for the brand, and there is no perceived difference between 95%, 65% and 45% post-consumer fiber.” They discontinued their unbleached, high post-consumer content (95%) toilet paper and reduced the post-consumer content of the rest of the line, now stating “EPA compliance” (and apparently ECF bleaching, though some people still claim you can get a “natural”, or unbleached, version). Georgia Pacific, the mega-corporation that bought Wisconsin Tissue and Fort James, discontinued Wisconsin’s Second Nature Plus line. Consumer access to high-post-consumer tissue products has been diminished by these actions. (Treecycle and Real Earth websites) Additionally, it appears that another manufacturer, SCA, is not producing their Ovation line anymore.

As a second issue, the inconsistency of the pulp supply used for tissue products and the reticence of the industry to discuss bleaching methods make it very difficult to verify and rely on any claims regarding post-consumer content and bleaching method. Due to reduction in product choices and the inconsistency of the pulp, the availability of high post consumer fiber and unbleached or processed chlorine-free (PCF) toilet paper is currently very limited, and the specifications of post-consumer content and bleaching method are often hard to verify and count on from order to order.

Some chlorine-free toilet papers currently available are summarized in the table below. Due to some conflicting claims regarding post-consumer content, the conservative claim was used. Prices and paper qualities reflect research done in late 2003 and are subject to change. Prices range from \$0.34-0.91 per roll, depending on level of post-consumer content and distributor. One distributor quoted a \$0.18/case for a minimum order of 500 cases (96 rolls/case). For comparison, the toilet paper offered through the State and Alameda County contracts cost from \$0.32-0.40 per roll. While the distributors shown below do sell in bulk, these prices are not for bulk orders, so some price reduction may be available for large orders. Unless noted otherwise, these prices do not include shipping.

From currently available information, neither Alameda County’s GSA contract nor the State’s DGS janitorial contract offer unbleached or chlorine-free toilet paper. A

worthwhile future task would be to try and work with Alameda County and the State to expand their contracts to include unbleached and/or PCF toilet paper.

### Summary of Chlorine-Free and Unbleached Toilet Paper

Manufacturer	Product Name	Description	Local Distributor	Price/roll as of December 2003 except as noted (delivery not included)	Contact
Seventh Generation	<i>Seventh Generation</i>	<ul style="list-style-type: none"> <li>2-ply, 500 sheets</li> <li>Minimum 80% pcf</li> <li>Bleached without chlorine</li> <li>Packaged without plastic</li> </ul>	Treecycle	\$0.77-0.91 Charges delivery fee	(406) 549-4582 <a href="http://www.treecycle.com">www.treecycle.com</a>
			Real Goods (1-ply, 1000 sheets only)	\$0.89-1.00	(800) 762-7325 <a href="http://www.realgoods.com">www.realgoods.com</a>
			Mountain Peoples Warehouse	\$0.46 \$500.00 min., no delivery fee	(800) 679-6733 <a href="http://www.mtnpeopleswhs.com">www.mtnpeopleswhs.com</a>
			Nature's Best	\$0.80	(800) 800-7799 <a href="http://www.naturesbest.net">www.naturesbest.net</a>
Atlantic Packaging	<i>April Soft and Fiesta</i>	<ul style="list-style-type: none"> <li>2 ply, 500 sheets</li> <li>30-80% pcf</li> <li>Bleached without chlorine</li> </ul>		\$0.67 (as of May 2002) Charges delivery fee	Atlantic Packaging Paul Neale (416) 298-5558
Earth Friendly	<i>Earth Friendly</i>	<ul style="list-style-type: none"> <li>2-ply, 280 sheets</li> <li>Minimum 10% pcf</li> <li>Bleached without chlorine</li> </ul>	Mountain Peoples Warehouse	\$0.38 \$500.00 min., no delivery fee	(800) 679-6733 <a href="http://www.mtnpeopleswhs.com">www.mtnpeopleswhs.com</a>
			Dale Cox Distributor	\$0.25 \$500.00 min., no delivery fee	Russ Cox (707) 778-7793
			Nature's Best	\$1.60 \$500.00 min., no delivery fee	(800) 800-7799 <a href="http://www.naturesbest.net">www.naturesbest.net</a>
Grand River	<i>Twice as</i>	<ul style="list-style-type: none"> <li>2 ply, 220 sheets</li> </ul>	Grand River	\$0.18 (as of May 2002)	Sandy Gibson

Manufacturer	Product Name	Description	Local Distributor	Price/roll as of December 2003 except as noted (delivery not included)	Contact
Paper Products	<i>Soft</i>	<ul style="list-style-type: none"> <li>100% pcf</li> <li>Unbleached</li> </ul>	Paper	500 <u>case</u> min., no delivery fee	(519) 746-2659
Bay West Paper Co.	<i>EcoSoft</i>	<ul style="list-style-type: none"> <li>2 ply, 500 sheets</li> <li>Minimum 20% pcf</li> <li>Bleached without chlorine</li> </ul>	Unisource	\$0.78 (as of May 2002)	(925) 598-6400 <a href="http://www.unisourcelink.com">www.unisourcelink.com</a>
			Sac Val	\$0.34 No min., no delivery fee	Brad Blair (707) 522-6840
Georgia-Pacific	<i>Envision</i>	<ul style="list-style-type: none"> <li>2 ply, 500 sheets</li> <li>Minimum 20% pcf</li> <li>ECF and unbleached</li> </ul> Note: The Envision line is not chlorine-free, but can apparently get “natural” (unbleached) version	Monahan	\$0.50 - \$0.63 \$150.00 min., no delivery fee	Allen Tom (510) 832-6714
			Mountain Peoples Warehouse	\$0.55	(800) 679-6733 <a href="http://www.mtnpeopleswhs.com">www.mtnpeopleswhs.com</a>
			Treecycle	\$0.78-0.95	(406) 549-4582 <a href="http://www.treecycle.com">www.treecycle.com</a>
			Unisource	\$0.79	(925) 598-6400 <a href="http://www.unisourcelink.com">www.unisourcelink.com</a>

\*pcf = post-consumer fiber

\*\*PCF= process chlorine-free

### 13. Are there any certifications for toilet paper?

The Chlorine-Free Products Association's PCF certification mark will soon appear on Seventh Generation white paper towels, and the company is working to extend the certification to its other paper products in the near future.

EcoLogo is the Canadian symbol for environmental products meeting a reduced "environmental burden" according to a formula developed by TerraChoice Environmental Services. TerraChoice has included Atlantic Packaging Products in its Environmental Choice Program, certifying that its sanitary products are produced from 100% recycled fiber and that no chlorine bleach is used in the paper making process.

Green Seal certifies papers and products that meet its minimum environmental criteria. Green Seal's standard for tissue paper (toilet paper and facial tissue) includes the following requirements:

- The fiber in bathroom tissue shall contain 100% recovered materials, including 20% post-consumer materials
- Recovered paper shall not be de-inked using a solvent containing chlorine
- Chlorine and its derivatives shall not be used in bleaching

However, Green Seal has been unable to provide a list of tissue products that carry their certification.

#### References:

Environmental Defense Fund (EDF). 1995. *Paper Task Force Recommendations for Purchasing and Using Environmentally Preferable Papers*. New York Recycled Paper. New York.

Paper Working Group. 2001. *Paper Working Group Report to Sustainable Supplier Council*.

Pryke, D. 1997. *Elemental Chlorine-Free (ECF): Pollution Prevention for the Pulp and Paper Industry*. Submission to the Joint Standing Committee on Natural Resources, Maine Legislature.

Reeve, D. 1997. *ECF Bleaching and TCF Bleaching versus Chlorine Bleaching*. Canadian Market Pulp.